

Books by M. N. Baker

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1888–1897

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1893

Sewage Disposal in the United States (with G. W. Rafter)
1894

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1896

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1901

British Sewage Works
1904

Notes on British Refuse Destructors
1905

The Quest for Pure Water
1948



M. N. BAKER

The QUEST for
PURE WATER

The History of Water Purification
From the Earliest Records
To the Twentieth Century

by
M. N. BAKER

Associate Editor (Retired) *Engineering News-Record*

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Publisher's Foreword

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The late Lord Acton, distinguished historian at Cambridge University, commented once that "the recent past contains the key to the present time." M. N. Baker no doubt was impressed by the same axiom when he initiated many decades ago his collection of rare historical volumes on water supply. Fortunately for the water works practitioner, Mr. Baker, earlier than most in a professional career, acquired "historical mindedness," that rare mark of the matured worker. When he crystallized, in the present volume, the distilled wisdom of the ages, which he had been gathering for over a half century, he captured a permanent place in the list of distinguished workers in sanitary engineering.

For thousands of years, the search for "pure" water has been persistently pursued by man. Criteria of purity have become more complex, more quantitative, perhaps even more rigid, but principles, methods and materials for purifying water have remained remarkably similar from the earliest recorded data of 2000 B.C. down to the present time. To trace the practices through almost 4,000 years would at first sight appear to be an impossible task for one man, no matter how endowed. But the task has been accomplished. In this one field, M. N. Baker has "relived the entire life of Mankind as a single imaginative experience" and his diary is at hand!

The student of water treatment will find in the chapters which follow an inexhaustible treasury of authenticated information. He will be enabled to trace the continuing demand by the consumer, and the consequent search by the practitioner, for improved quality of water. The search is not ended—more than likely it is never ending! The intuitive avoidance centuries ago of "dirty water," the subsequent use of the chemical test, the great progress in the biological era, the more recent esthetic demands—all are indices of the endless character of this "Quest."

Neither the consumer nor the professional should be disconcerted by this endless adventure in search of "pure" water. It is the natural concomitant of advancing knowledge and expanding horizon. Mr.

Baker makes clear that, although evidence of water purification effort dates back thousands of years and great advances in the art were made in the last half of the eighteenth century, it was not until the first half of the nineteenth century that treatment methods were applied to the water supplies of whole cities and, from the late 1890's, rule-of-thumb has been increasingly replaced by the making and application of the results of scientific research by thousands of engineers, chemists and biologists.

More disconcerting perhaps than the endless adventure is the conclusion which may be drawn from the present volume that the history of "conditioning or treatment" of water is *largely* a history of empiricism, a history of an art and not of a science. Mr. Baker would probably be the first to agree that his task has been best accomplished by making it clear that history is a challenger to the future, that "history made and history making are scientifically inseparable," and that the water works man of today has still a world to conquer!



Abel Wolman
Consulting Sanitary Engineer
Baltimore, Maryland
May 1948

Author's Preface

During my forty-five years on the editorial staff of *Engineering News* and *Engineering News-Record* from 1887 to 1932, much of my work was devoted to public water supplies. I began by gathering and compiling descriptions of all the water works of the United States and Canada. These descriptions first formed a volume of more than 600 closely printed pages entitled *The Manual of American Water Works, 1888*. Three revisions and extensions of the work followed, bringing the data down to 1896. In addition to statistical data, these manuals contained brief descriptions of such water purification plants as existed or of those which had been built and later abandoned.

In 1893–1896, I wrote for *Engineering News* a series of articles on "Water Purification in America." These reports described the very few slow sand filters and the comparatively many rapid or mechanical filtration plants then in use. Also, before, during and after that period, I wrote or edited hundreds of articles on water purification in America and abroad.

In the early 1930's I was asked to write a few pages on the history of water purification for either a proposed revision of the American Water Works Association's *Water Works Practice Manual* or a short monograph. The outcome was a sketch entitled "The History of Water Purification," which appeared in the *Journal of the American Water Works Association* in July 1934.

Having become deeply interested in the historical background of current water works practices through the study undertaken in preparing the article, I began what proved to be nine years of gathering and digesting data from libraries, rare-book dealers and correspondence with engineers and librarians the world over. After much re-writing and painful condensation—often cutting to a few sentences what would have made a long chapter—I delivered to the American Water Works Association on my seventy-ninth birthday (January 26, 1943) manuscript, illustrations and an extensive bibliography for the present volume. War and postwar conditions have delayed publication for the five years past.

A large amount of source material, chronologically arranged, of which much has been reduced to monograph form and all has been typewritten, and a collection of books and pamphlets, many of which are rare, have been deposited with the Association and, by it, transferred to the Library of the United Engineering Societies, New York City, where the material will be readily accessible for reference.

My thanks are given to librarians and to a host of water works superintendents, engineers, chemists and bacteriologists in America and Europe, all of whom have contributed unstintingly to my researches for this volume. Thanks are also given to the American Water Works Association for its cooperation in my efforts, for financial aid and for publishing my book.

M. N. Baker.

M. N. Baker
Upper Montclair, N.J.
May 1948

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